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## Patent Abstracts of Japan

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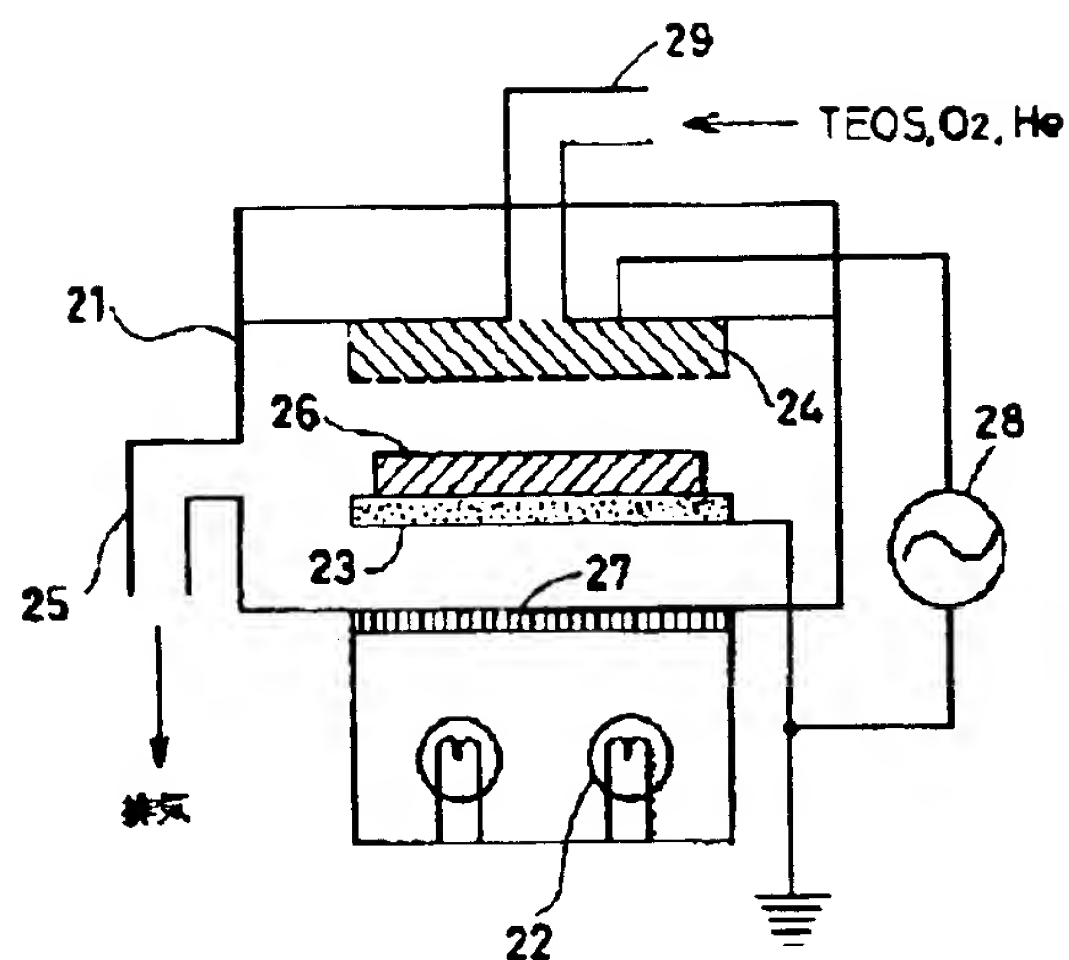
APPLICATION DATE : 21-03-92  
APPLICATION NUMBER : 04094796

APPLICANT : RICOH CO LTD;

INVENTOR : YAMASHITA KIMIHIKO;

INT.CL. : H01L 21/90 H01L 21/316

TITLE : SEMICONDUCTOR DEVICE AND ITS  
MANUFACTURE



ABSTRACT : PURPOSE: To prevent detrimental affect on device properties by reducing an amount of carbon atom taken into a silicon oxide film when a silicon oxide film is formed by plasma CVD method using organic oxysilane such as TEOS as a main material.

CONSTITUTION: A silicon substrate 26 is arranged on a lower electrode 23 and heated by a lamp 22. Reaction gas is supplied through a gas supply port 29 and a high frequency voltage is applied between both electrodes 23, 24 from a high frequency power supply 28. Thereby, reaction gas reacts and a BPSG film or a PSG film is deposited on the silicon substrate 26. Conditions of plasma CVD are; a pressure inside a CVD reaction chamber 21 of 6.5Torr, a substrate temperature of 300 to 450°C, a power of the high frequency power supply 28 of 100 to 500W. The BPSG film is deposited supplying TEOS kept at 40°C together with oxygen, TMP and TMB as a reaction gas from a gas supply port 29 to the reaction chamber 21 while making helium gas flow. Ratio of O<sub>2</sub> flow rate/TEOS flow rate is 2.0 or above.

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